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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DO, CHAT C	

ART UNIT	PAPER NUMBER
2193	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/041,044	LIM, Y. C.	
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Amendment filed 03/02/2007.

2. Claims 1-6 are pending in this application. Claims 1 and 4 are independent claims. This Office Action is made non-final.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyer (U.S. 4,947,360) in view of King et al. (U.S. 7,123,728).

Re claim 1, Dyer discloses in Figures 1-2 a graphics equalizer utilizing multichannel digital filter bank (e.g. abstract and Figure 1) comprising: a plurality of first order or second order digital filters (e.g. Figures 1 and 3 as first order digital filter), connected in a cascade fashion (e.g. Figure 1 wherein digital filter 3 is cascaded to digital filter 1), whereby electrical signals are enhanced, attenuated or kept the same, after passing through cascading sub-filters (e.g. Figure 3 wherein the filtered electrical signals must be in either enhanced or improve, attenuated or distorted, or same signal), wherein first order or second order digital filters are of the recursive type (e.g. Figure 1 wherein

the recursive type occurs with feedback signal) wherein first or second order digital filters do not require multiple sampling frequencies (e.g. col. 3 lines 45-65 wherein only one frequency is used per digital filter at a time).

Dyer fails to disclose in Figures 1-3 the filter is suitable for graphically equalizing electrical signals received via a communication path, and first and second order digital filters have programmable parameters which allow users to shape graphics equalizer's frequency spectra as desired. However, King et al. disclose in Figures 1-11 the filter is suitable for graphically equalizing electrical signals received via a communication path, and first and second order digital filters have programmable parameters which allow users to shape graphics equalizer's frequency spectra as desired (e.g. col. 1 line 63 to col. 2 line 38 and Figure 4 wherein the graphical equalizer is generated based on the user input parameters into 416 as example).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the filter is suitable for graphically equalizing electrical signals received via a communication path, and first and second order digital filters have programmable parameters which allow users to shape graphics equalizer's frequency spectra as desired as seen in King et al.'s invention into Dyer's invention because it would enable the user to easily adjust the parameter to desired frequency response of an equalizer (e.g. col. 5 line 60 to col. 6 line 4).

Re claim 2, Dyer further discloses in Figures 1-2 digital filters are first order and have a transfer function whose equation is $H_j(z) = (1-az^{-1})/(1-bz^{-1})$ (e.g. B(z) equation in col. 2 line 29 wherein $b = K_3$ and $a = -(K_2K_4-K_3)$) absolute values of a and b are <1; a and

b have the same sign (e.g. all values of coefficients are cited in Table 1 in col. 4 less than 1).

Re claim 4, it is a method claim of claim 1. Thus, claim 4 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 5, it is a method claim of claim 2. Thus, claim 5 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyer (U.S. 4,947,360) in view of King et al. (U.S. 7,123,728), as applied to claims 1 and 4 respectively, in further view of Cox et al. (U.S. 5,353,346).

Re claim 3, Dyer in view of King et al. fail to disclose filters are second order and have a transfer function whose equation is $H_i(z) = \{1-2g_i\cos(p_i)z^{-1}+g_i^2z^2\}/\{1-2r_i\cos(p_i)z^{-1}+r_i^2z^2\}$. However, Cox et al. disclose in Figure 2 filters are second order and have a transfer function whose equation is $H_i(z) = \{1-2g_i\cos(p_i)z^{-1}+g_i^2z^2\}/\{1-2r_i\cos(p_i)z^{-1}+r_i^2z^2\}$ (e.g. H(z) in col. 3 line 50 wherein g = 1; r = beta; p = 2pif_estT as seen in col. 6 line 10).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add filters are second order and have a transfer function whose equation is $H_i(z) = \{1-2g_i\cos(p_i)z^{-1}+g_i^2z^2\}/\{1-2r_i\cos(p_i)z^{-1}+r_i^2z^2\}$ as seen in Cox et al.'s invention into Dyer in view of King et al.'s invention because it would enable to provide superior filter with low computational complexity (e.g. abstract and col. 1 line 61 to col. 2 line 4).

Re claim 6, it is a method claim of claim 3. Thus, claim 6 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Response to Arguments

6. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

a. The applicant argues in page 5 first paragraph for claims 1 and 4 that the secondary reference by King et al. disclose a parametric equalizer which is very different from the graphics equalizer of the instant application. Thus, the combination of references fails to disclose a graphic equalizer, which allows users to vary the shape of a frequency spectrum as desired.

The examiner respectfully submits that the claim language does not specific what is included or excluded in the claim. As admitted by the applicant, the secondary reference by King et al. discloses a graphically parametric equalizer that contains every elements of the graphics equalizer of the instant application which allows to set graphically the parameters to boost, cut, set, and change the center frequency and bandwidth of channel.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

April 28, 2007